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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,923	03/22/2004	Seock-Hwan Kang	21C-0092	2032

23413 7590 01/29/2007

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EXAMINER	
SANEI, HANA ASMAT	
ART UNIT	PAPER NUMBER
2879	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/805,923	KANG ET AL.
	Examiner	Art Unit
	Hana A. Sanei	2879

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) ___ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Amendment, filed on 11/1/06, has been entered and acknowledged by the Examiner.

Claims 1-34 are pending in the instant application.

Response to Arguments, by Examiner, included below.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "240" and "158" have both been used to designate the same element in Fig. 9 for example. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Surface light source device having light diffusion portion".

Claim Objections

Claim 31 is objected to because of the following informalities: The phrase "the sealing member" in the last line of Claim 31 lacks proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-3 and 14-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al (EP 1447785) in view of Torihara et al (US 6066920).

In regard to claim 1, Suga teach a surface light source device (figure 18) comprising: a light source body including a first substrate (top 5 in figure 18; 5a in figure 25; paragraphs 286-290 and 138-140) through which light is output (see figure 18 in Suga as well as figure 18 below), a second substrate (bottom of 16; paragraphs 286-290 and 121) disposed to face the first substrate (see figure 18) defining a space (2) therebetween, the space being filled with a discharge gas (described in paragraph 25)

to generate the light (as described in paragraph 25; please see figure 18 as described below); a light diffusing part (5, "light diffusing film, prism film, or polarizing film," see paragraphs 135) to diffuse the light generated from the light source body (2) to output diffused light (abstract; paragraphs 82, 25, 28, and 13). Suga fails to exemplify (is silent to) the use of a voltage applying part.

In the same field of endeavor, Torihara teaches a cold cathode tube (Fig. 9) having a voltage applying part across as conventional in the art. Torihara teaches the suitability of using a cold cathode tube having a voltage applying part across. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the voltage applying part, as disclosed by Torihara, in the invention of Suga in order to ensure proper usage and application of power to the cold cathode tube and to choose from one of the cold cathode tubes disclosed by Torihara, since Torihara teaches the suitability of using a cold cathode tube having a voltage applying part across and it has been held to be within the general skill of an artisan to select a known material on the basis of the intended use. See MPEP 2144.07.

In regard to claim 2, Suga et al ('785) teach that the light diffusion part (5) is integrally formed with the light source body (11; see figure 1).

In regard to claim 3, Suga et al ('785) teach at least one partition disposed between the first and second substrates (side part of 16. see figure 18), the space being regionally divided by the at least one partition (see figure 18); a sealing member (lower 5 in figure 18, 14 in figure 28; Paragraph 99) disposed between the first (top 5 in figure 25) and second substrates (16) to seal the space; and a voltage applying part to provide

the electric signal to excite the discharge gas in the space (not in figures; paragraphs 82, 25, and 28).

In regard to claim 14, Suga et al ('785) teach the light diffusion part (5b; figure 25) includes a light diffusion pattern (see figure 25) formed on a surface of the first substrate (5a) to diffuse the light generated from the light source body.

In regard to claim 15, Suga et al ('785) teach the first substrate (5a) has first and second surfaces opposite to each other (see figures 25 and 18) and the first surface is in contact with the space and the at least one partition (see figure 25; partitions are also 13; paragraphs 109-110), the light diffusion pattern including a plurality, of convex surfaces successively formed on the second surface (see figure 29).

In regard to claim 16, Suga et al ('785) teach the first substrate (5a) has first and second surfaces opposite to each other and the first surface is in contact with the space and the at least one partition (see figures 25 and 18), the light diffusion pattern including a plurality of convex members formed on the second surface. (see figure 29) such that density of the convex members is higher at a first area through which the light passes than at a second area adjacent to the at least one partition (see figure 17; the light diffusion pattern covers only the area of the display where light passes, and not 2 therefore the density of the light diffusion pattern is greater over the surface which light passes in the light emitting device).

In regard to claim 17, Suga et al ('785) teach the convex members at the first and second areas have a substantially identical size (see figure 29, the light diffusion pattern

is the same size; figure 18 the light diffusion pattern is over the entire light emitting device).

In regard to claim 18, Suga et al ('785) teach the first substrate (5a) has first and second surfaces opposite to each other and the first surface is in contact with the space and the at least one partition (13), the light diffusion pattern including a plurality of convex members (5b; see figure.29) formed on the second surface such that the convex members have a larger size at an area adjacent to the at least one partition than at an area through which the light passes (see figure 24 which shows varying sizes of convex members; figure 18 shows the light diffusion pattern covering the entire light emitting deice. Therefore the convex members of varying sized will vary throughout the length of the substrates making a smaller convex shape in an area of the display where light passes, and a larger shape at an area adjacent to an area of one partition- 13).

In regard to claim 19, Suga et al ('785) teach the first substrate (5a) has first and second surfaces opposite to each other and the first surface is in contact with the space and the at least one partition (see figure 18), the light diffusion pattern including a plurality of convex surfaces successively formed on the first surface (see figure 26).

In regard to claim 20, Suga et al ('785) teach the first substrate (5a) has first and second surfaces opposite to each other and the first Surface is in contact with the space (see figure 18) and the at least one partition, the light diffusion pattern including a plurality of convex surfaces (see figure 26) successively formed on both the first (figure 14) and second surfaces (figure 15; as well as figure 18 with the upper 5a having both sides attached to a light diffusion pattern 5b from both the upper "5" and lower "5").

In regard to claim 21, Suga et al ('785) the first substrate (5a) has first and second surfaces opposite to each other and the first surface is in contact with the space and the at least one partition (see figure 18), the light diffusion pattern including a plurality of V-shaped grooves successively formed on the second surface (see figure 25).

In regard to claim 22, Suga et al ('785) teach the V-shaped grooves each have a rough surface such that a plurality of convex surfaces successively formed on the surface of the respective V-shaped grooves (see figure 24, V-shaped groove being formed by the varying sizes of 12 and covering 34,therefore the V-shaped groove has a plurality of convex surfaces).

In regard to claim 23, Suga et al ('785) teach the first (5a) substrate has first and second surfaces opposite to each other and the first surface is in contact with the space and the at least one partition (see figure 18), the light diffusion pattern including a plurality of protrusion members discretely formed on the second surface, the protrusion members each having a cross-sectional view of a polygonal shape (see figure 31).

In regard to claim 24, Suga et al ('785) teach the first substrate (5a) has first and second surfaces opposite to each other and the first surface is in contact with the space and the at least one partition, the light diffusion pattern including a plurality of grooves discretely formed on the second surface, the grooves each having a cross-sectional view of a polygonal shape (see figures 29 and 31).

In regard to claim 25, Suga et al ('785) teach 2 the light diffusion part (5b) includes a plurality of light diffusion members disposed on a surface of the first substrate through which the diffused light is output (see figure 18, 25, and 31).

In regard to claim 26, Suga et al ('785) teach the light diffusion members (12; figure 24; paragraph 114) have a substantially identical size (see figure 18) and are attached on the surface of the first substrate by adhesive (34; paragraph 100).

In regard to claim 27, Suga et al ('785) teach the light diffusion members have various sizes (see figure 24) and are attached on the surface of the first substrate by adhesive (34).

In regard to claim 28, Suga et al ('785) teach the light diffusion members have a substantially identical size (see figure 18) and are securely held by a binder that is coated on the surface of the first substrate (34). The Examiner notes that the recitation of the binder being coated is a process by product recitation. The patentably of a claim resides in the final product and not the process by which it was manufactured. Accordingly, Suga et al's ('785) teaching of a binder layer on a substrate is considered to meet the claimed recitation.

2. Claims 4-6, 11-13, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al (EP 1447785) in view of Torihara et al (US 6066920) in further view of Okajima (US 6072276).

In regard to claims 4-6 and 30-31, Suga-Torihara disclose all the limitations set forth, as described above, except a sealing layer is formed between the at least one partition and the first substrate so that the space is sealed at a contact area between

the at least one partition and the first substrate; a first sealing layer is formed between the sealing member and the first substrate, and a second sealing layer is formed between the sealing member and the second substrate; and the space is defined by surfaces of the first and second substrates, the at least one partition and the sealing member, the surfaces are coated with a fluorescent layer.

In the same field of endeavor, Okajima ('276) teach a light emitting device (figure 1) where a sealing layer (5; figure 1; column 2 lines 41-55) is formed between the at least one partition (6) and the first substrate (1) so that the space (not numbered; see figure 1) is sealed at a contact area between the at least one partition (6) and the first substrate (1; see figure 1); a first sealing layer (4; column 10 line 63 to column 11 line 5) is formed between the sealing member (5) and the first substrate (1), and a second sealing layer (7) is formed between the sealing member (5) and the second substrate (8); and the space is defined by surfaces of the first (1) and second substrates (8), the at least one partition (6) and the sealing member (7), the surfaces are coated with a fluorescent layer (10, 11, 12; column 10 line 63 to column 11 line 31), and a third sealing member formed between the sealing member and the second substrate (air tightly sealed (side), Col. 2, lines 23-26) in order to improve the contrast and uniformity of the emitted light (column 10 lines 39-45).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the display of Suga-Torihara with the configuration of sealing layers and fluorescent layers of Okajima. Motivation to combine would be to improve the contrast and uniformity of the emitted light of the display.

In regard to claims 11-13, Suga-Torihara disclose all the limitations set forth, as described above, except the at least one partition includes two or more partitions having a substantially identical length smaller than a distance between opposite ends of the space in a longitudinal direction of the partitions; the partitions each have first and second end portions opposite to each other in the longitudinal direction, the partitions being in contact with the sealing member such that the first end portions of odd-numbered Ones of the partitions are in contact with the sealing member and the second end portions of even-numbered ones of the partitions are in contact with the sealing member to partition the space in a serpentine form; and the partitions are arranged in a direction substantially perpendicular to the longitudinal direction of the partitions and substantially parallel with each other.

In the same field of endeavor, Okajima ('276) teach at least one partition includes two or more partitions (multiple 6's; see figure 1) having a substantially identical length smaller than a distance between opposite ends of the space in a longitudinal direction of the partitions (see figure 1), the partitions each have first and second end portions opposite to each other in the longitudinal direction (see figure 1), the partitions being in contact with the sealing member (16) such that the first end portions of odd-numbered ones of the partitions are in contact with the sealing member and the second end portions of even-numbered ones of the partitions are in contact with the sealing member (7) to partition the space in a serpentine form (the first ends are always in contact with sealing member 4, the second ends are always in contact with sealing member 7); and the partitions are arranged in a direction substantially perpendicular to the longitudinal

direction of the partitions and substantially parallel with each other (see figure 1) in order to improve the contrast and uniformity of the emitted light (column 10 lines 39-45).

Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the display of Suga-Torihara with the sealing layers of Okajima. Motivation to combine would be to improve the contrast and uniformity of the emitted light of the display.

3. Claims 7-10 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al (EP 1447785) in view of Torihara et al (US 6066920) in further view of Okajima (US 6072276) and in further view of Winsor (US 20020117959).

In regard to claims 7, 8, and 32, Suga-Torihara-Okajima teach all the limitations set forth, as described above, except the surfaces of the first and second substrates have areas in contact with the at least one partition and remaining areas not in contact with the at least one partition, the fluorescent layer being formed on the remaining areas of the surfaces of the first and second substrates; the fluorescent layer is formed on the surfaces of the at least one partition which include a surface in contact with the sealing layer.

In the same field of endeavor, Winsor ('959) teach the surfaces of the first (16; figure 5; paragraphs 22-23) and second (14) substrates have areas in contact with the at least one partition (18) and remaining areas not in contact with the at least one partition (not numbered, see figure 5), the fluorescent layer being formed on the remaining areas of the surfaces of the first and second substrates (28, 34; paragraphs 34 and 37); the fluorescent layer (30; paragraph 37) is formed on the surfaces of the at

least one partition (18) in order to produce a light-emitting device that has a Uniform display which is readily scalable to larger display sizes (paragraph 7). Okajima ('276) teaches a fluorescent layer (10) which include a surface in contact with the sealing layer (7) in order to improve the contrast and uniformity of the emitted light (column 10 lines 39-45).

Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the light display of Suga with the fluorescent layer of Okajima and Windsor. Motivation to combine would be to have a device with a uniform display that is readily scalable to larger display sizes and to improve the contrast and uniformity of the emitted light.

In regard to claims 9, 10, and 33, Suga-Torihara Okajima teach all the limitations set forth, as described above, except a light reflecting layer formed between the fluorescent layer and the surfaces of the second substrate and the least one partition; the light reflecting layer is made of material including aluminum oxide (Al.sub.20.sub.3) or titanium oxide (TiO.sub.3).

In the same field of endeavor, Winsor ('959) teaches a light reflecting layer (26; figure 5; paragraph 34) formed between the fluorescent layer (28; paragraph 34) and the surfaces of the second substrate (14) and the least one partition (20; paragraph 32); the light reflecting layer (26) is made of material including aluminum oxide or titanium oxide (paragraph 34) in order to direct light to emit from the top of the lamp (paragraph 34).

Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the light display of Suga/Okajima with the reflecting layer of Winsor. Motivation to combine would be to direct light to emit from the top of the lamp.

4. Claims 29, 30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al (EP 1447785) in further view of Torihara et al (US 6066920).

In regard to claim 29, Suga teaches a display panel (10, Fig. 1) to display the images (paragraph 81); a surface light source device (11) to provide surface light to the display panel (paragraph 81), the surface light source device including: a light source body (2) including a first substrate (top 5 in figure 18; 5a in figure 25; paragraphs 286-290 and 138-140) through which light is output (see figure 18); a second substrate (bottom of 16; paragraphs 286-290 and 121) disposed to face the first substrate (see figure 18) defining a space therebetween, the space defined between the first and second substrates being filled with a discharge gas to generate light (the space formed is the cold cathode, a cold cathode is filled with a discharge gas to generate light as described in paragraph 25), a light diffusing part (5 is a light diffusing layer, see paragraphs 136) to diffuse the light generated from the light source body (that is, the cold cathode) to output diffused light (abstract; paragraphs 82, 25, 28, and 13). Suga et al ('785) are silent regarding the limitation of a receiving container to receive and securely hold the display panel and the surface light source device. However, it would have been obvious at the time of the invention to one of ordinary skill in the art to have a receiving container to receive and securely hold the display panel and the surface light

source device, since it is known in the art that such a container is necessary in order to keep the display panel and the surface light together and produce a display. Suga fails to exemplify (is silent to) the use of a voltage applying part.

In the same field of endeavor, Torihara teaches a cold cathode tube (Fig. 9) having a voltage applying part across as conventional in the art. Torihara teaches the suitability of using a cold cathode tube having a voltage applying part across. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the voltage applying part, as disclosed by Torihara, in the invention of Suga in order to ensure proper usage and application of power to the cold cathode tube and to choose from one of the cold cathode tubes disclosed by Torihara, since Torihara teaches the suitability of using a cold cathode tube having a voltage applying part across and it has been held to be within the general skill of an artisan to select a known material on the basis of the intended use. See MPEP 2144.07.

In regard to claim 30, Suga-Torihara teach at least one partition (side part of 16; see figure 18) disposed between the first and second substrates, the space being regionally divided by the at least one partition; a sealing member disposed between the first and second substrates to seal the space (lower 5 in figure 18; 14 in figure 28; paragraph 99).

In regard to claim 34, Suga et al ('785) teach the light diffusion part (5b; figure 25) includes a light diffusion pattern (see figure 25) formed on a surface of the first substrate (5a) to diffuse the light generated from the light source body.

Response to Arguments

Applicant's arguments filed on 6/9/06 have been fully considered but they are not persuasive.

In response to Applicant's arguments that Suga et al does not disclose each and every element, the Examiner respectfully disagrees.

In order to expedite the prosecution of the application, Examiner suggest clearly defining the term "space," as claimed in Claim 1, as a – **planar space** –. This modification negates the possibility of a cold cathode fluorescent **tube** altogether since the – planar space – can no longer be interpreted as a cylindrical space.

The claim language employed to describe the Applicant's invention is simply too broad, as the first and second substrates may essentially be any one of planar surfaces opposite each other, in this case Examiner took any two substrates in Fig. 18 of Suga and simply referred to them as "first and second substrates." Defining the first and second substrates as the – first and second substrates **of the light source** – prevents Examiner from broadly interpreting the respective substrates and ensuring that the substrates belong to the – planar space – and hence define the light source more clearly.

Furthermore, the term "integrally" is vague and unclear. The light diffusion part may be formed directing on the surface of a first or second substrate via an adhesive or formed indirectly via an attachment means creating a space between the light diffusion part and the substrate surface. Either scenario is "integrally" formed.

For the reasons stated above, the rejection of the claims is deemed proper.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hana A. Sanei whose telephone number is (571) 272-8654. The examiner can normally be reached on Monday- Friday, 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hana Sanei

Hana A. Sanei
Examiner

Joseph Williams
Primary Examiner